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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/850,059	05/08/2001	Jang Geun Oh	P-180	9167

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EXAMINER

PATEL, NITIN C

ART UNIT	PAPER NUMBER
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2116

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/850,059

Applicant(s)

OH ET AL.

Examiner

Nitin C. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed on 28 April 2005.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
4a) Of the above claim(s) 16 and 27 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-15 and 28-34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. This is in responsive to request for continued examination [RCE] filed on 28 April 2005.
2. Claims 16, and 27 have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1 – 15, 17 – 26, and 28 – 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malcolm et al. [hereinafter as Malcolm], US Patent 6,684, 341 B1 [cited in previous office action] and further in view of Kawata, US Patent 6,076,171 [cited in previous office action].
 4. As to claims 1, 12, 15, 24, and 25 Malcolm teaches a system and method for adjusting a speed of a central processing unit [CPU], comprising: measuring [determining] a usage of the CPU [CPU utilization] [step 600, fig.6], comparing

[comparing] the measured CPU usage [current processor utilization] with a predetermined reference CPU usage range [predetermined processor utilization ratio][step 604, fig. 64] and adjusting [adjusting by increasing/decreasing] the speed of the CPU [processor speed] responsive to [based on] the comparison [col. 7, lines 23 – 58].

However, Malcolm does not teach to adjust the speed of the CPU responsive to comparison when measured CPU usage is outside the predetermined reference CPU usage range.

Kawata teaches an information processing apparatus includes a CPU and method of varying the system clock frequency [clock speed] based upon detecting the CPU busy ratio [CPU utilization] and deciding depending upon whether the CPU busy ratio [which is other way of representing CPU utilization] falls within a previously set permissible rang of CPU busy ratio [by comparing the CPU busy ration is within or outside the predetermined range from 25% to 70%] [col. 2, lines 46 – 62, col. 7, lines 14 – 41, col. 8, lines 15 – 58, col. 11, lines 23 – 36, col. 12, lines 35 – 47, col. 13, lines 20 – 24, col. 15, lines 5 – 20, fig. 2, 3-4, 12].

It would have been obvious to one of ordinary skill in art, having the teachings of Malcolm and Kawata before him at the time of invention was made, to modify the decision of adjusting [adjusting by increasing/decreasing] the speed of the CPU [processor speed] responsive to [based on] the comparison disclosed by Malcolm to include deciding criteria depending upon whether the CPU busy ratio falls within a previously set permissible rang of CPU busy ratio [by comparing the CPU busy ration is

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within or outside the predetermined range from 25% to 70%] as taught by Kawata in order to obtain optimum power by dynamically changing system clock frequency and adjustment to CPU power can be carried out efficiently without causing the user discomfort such as insufficiency of power [col. 2, lines 33 – 67, lines 1 – 7, col. 4, lines 38 - 41].

5. As to claims 2, 10, 11, 20, 26, and 33 - 34, Malcolm discloses to set the predetermined reference CPU usage range either with or without a user's input [col. 7, lines 3 – 10].

6. As to claims 3 - 4, Malcolm discloses the adjustment of CPU speed with reducing the CPU speed to a next lower speed [606, slow down processor by one unit] in step wise fashion [with a smallest unit], when the measured usage [current utilization] is less than a minimum reference CPU usage of predetermined reference CPU usage range [processor utilization ratio][col. 7, lines 50 - 58, fig. 6].

7. As to claim 5, Kawata teaches maintaining the current CPU speed [system clock frequency] if measured CPU usage is between minimum and maximum predetermined reference CPU usages [col. 13, lines 20 – 24]. 21.

8. As to claims 6, Malcolm discloses the adjustment of CPU speed with recovering [608, speed up processor] the CPU speed [606, slow down processor by one unit], when the measured usage [current utilization] is more than maximum reference CPU usage of predetermined reference CPU usage range [processor utilization ratio][col. 7, lines 50 - 58, fig. 6].

9. As to claims 7, 18, and 30 Malcolm discloses Windows system [Windows 2000] therefore he teaches detection of registry information of a computer system too [col. 2, lines 26 - 33, col.3, lines 55 – 56].

10. As to claims 8, and 31 Kawata teaches to measure and calculate [with timers] an idle thread value of CPU for predetermined period of time [deciding idle state of CPU] [col. 13, lines 25 – 47].

11. As to claims 9, 17, and 32, Malcolm discloses the measuring, comparing, and adjusting steps in repeated in order at predetermined interval of time [fig. 6].

12. As to claim 13, Malcolm discloses a power management [219], which includes registers and method of automatically adjusting the speed of the processor [col. 4, lines 16 – 44].

13. As to claim 14, since Malcolm discloses device driver [PM driver 3 12], which is inherently to have seven types of different layers.

14. As to claims 19, and 29, Malcolm teaches subroutine to initialize all clock speed [initialization subroutine of system inherently initialize the CPU clock speed].

15. As to claim 21, Malcolm teaches a third routine for adjusting [by increasing/decreasing] the speed of the CPU [speed of CPU], wherein the third circuit comprises: (i) a first unit reduces the speed [606, speed down] if the measured CPU usage is less than a minimum reference CPU usage of the predetermined CPU range, (ii) a second unit maintains the speed if the measured CPU usage is within the predetermined CPU usage range [processor speed is maintained with processor utilization ratio by adjusting speed in a smallest unit increment in granularity][col. 7, lines

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50 – 56], and (iii) a third unit recovers the speed [608, speedup] if the measured CPU usage is more than a maximum reference CPU usage of the predetermined reference CPU usage range [col. 7, lines 23 - 58, fig. 6].

16. As to claims 22, and 23, Kawata teaches CPU speed adjustment method, wherein if the measured CPU usage is less than a minimum reference CPU usage of the predetermined reference CPU usage range [CPU busy ratio], then the adjustment of the CPU speed comprises reducing the CPU speed in a stepwise fashion, wherein the reduction of the CPU speed comprises adjusting the speed to a next lower speed, and wherein if the measured CPU usage is between minimum and maximum reference CPU usages of the predetermined reference CPU usage range, then the adjustment of the CPU speed is carried out by maintaining current CPU speed [by not varying clock frequency] by performing no adjustment [col. 4, lines 7 - 41, col. 9, lines 12 – 24, col. 13, lines 20 - 24].

17. As to claim 27, Malcolm teaches determination of the CPU performance state [CPU speed] comprises changing the performance state [CPU speed] to a next lower performance state [next lower speed] in a stepwise fashion [fig. 6].

18. **Examiner's note:** Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part

of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

19. **Prior Art not relied upon:** Please refer to the references listed in attached PTO-892, which, are not relied upon for claim rejection since these references are relevant to the claimed invention.

Response to Arguments

Applicant's arguments with respect to claims 1 – 15, 17 – 26, and 28 – 34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin C. Patel whose telephone number is 571-272-3675. The examiner can normally be reached on 6:45 am - 5:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on 571-272-3670. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Nitin C. Patel
May 23, 2005



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